

Title (en)  
METHOD FOR COATING METALLIC SURFACES WITH A MULTI-COMPONENT AQUEOUS COMPOSITION

Title (de)  
VERFAHREN ZUR BESCHICHTUNG VON METALLISCHEN OBERFLÄCHEN MIT EINER WÄSSERIGEN ZUSAMMENSETZUNG AUS VIELEN KOMPONENTEN

Title (fr)  
PROCÉDÉ PERMETTANT DE RECOUVRIR DES SURFACES MÉTALLIQUES AU MOYEN D'UNE COMPOSITION AQUEUSE CONTENANT DE NOMBREUX CONSTITUANTS

Publication  
**EP 2771499 B1 20151014 (DE)**

Application  
**EP 12775501 A 20121023**

Priority

- DE 102011085091 A 20111024
- EP 2012070929 W 20121023

Abstract (en)  
[origin: WO2013060662A2] The invention relates to a method for improving the throwing power of an electrodeposition coating, by coating metallic surfaces with a pretreatment composition comprising silane/silanol/siloxane/polysiloxane, said composition comprising, as well as water, a) at least one compound a) selected from silanes, silanols, siloxanes and polysiloxanes, of which at least one of these compounds is still able to condense, and comprising b) at least one titanium-, hafnium- and/or zirconium-containing compound b), and also comprising c) at least one kind of cations c) selected from cations of metals from transition groups 1 to 3 and 5 to 8, including lanthanides, and also from main group 2 of the Periodic Table of the Elements, and/or at least one corresponding compound c), and/or comprising d) at least one organic compound d) selected from monomers, oligomers, polymers and copolymers, including block copolymers; the coating freshly applied with this composition is rinsed at least once with water, wherein a) at least one water rinse comprises surfactant and/or wherein b) the substrates prior to the silane-based pretreatment are treated at least once with an iron-containing aqueous composition, and, after the water rinse, an electrodeposition coating is applied, the coating freshly applied with this composition not being through-dried before said rinsing, so that the at least one condensable compound a) does not condense to a great extent before the rinsing of the pretreatment coating with water and/or before being coated with an electrocoat material.

IPC 8 full level  
**C23C 18/12** (2006.01); **C23C 22/34** (2006.01); **C23C 22/78** (2006.01); **C23C 22/80** (2006.01); **C23C 22/83** (2006.01); **C25D 13/20** (2006.01)

CPC (source: CN EP RU US)  
**C23C 18/122** (2013.01 - CN EP RU US); **C23C 18/1241** (2013.01 - CN EP RU US); **C23C 22/34** (2013.01 - CN EP RU US); **C23C 22/78** (2013.01 - CN EP RU US); **C23C 22/80** (2013.01 - CN EP US); **C23C 22/83** (2013.01 - CN EP RU US); **C25D 5/34** (2013.01 - US); **C25D 5/36** (2013.01 - US); **C25D 5/44** (2013.01 - US); **C25D 13/20** (2013.01 - CN EP RU US); **C23C 2222/20** (2013.01 - CN EP US); **Y10T 428/31663** (2015.04 - EP US)

Citation (opposition)  
Opponent : Henkel AG & Co. KGaA

- DE 102005015576 A1 20061005 - CHEMETALL GMBH [DE]
- WO 2011098322 A1 20110818 - HENKEL AG & CO KGAA [DE], et al
- DE 2017327 A1 19710121
- US 2008280046 A1 20081113 - BRYDEN TODD R [US], et al
- DE 19733972 A1 19990211 - HENKEL KGAA [DE]
- US 2004170840 A1 20040902 - MATSUKAWA MASAHIKO [JP], et al

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**DE 102012219296 A1 20130425**; BR 112014009860 A2 20170418; BR 112014009860 B1 20210119; CN 104271799 A 20150107; CN 104271799 B 20170308; EP 2771499 A2 20140903; EP 2771499 B1 20151014; ES 2556967 T3 20160121; IN 3778CHN2014 A 20150904; JP 2015503021 A 20150129; JP 6305340 B2 20180404; MX 2014004933 A 20141017; MX 353928 B 20180206; RU 2014120920 A 20151210; RU 2661643 C2 20180718; US 10378120 B2 20190813; US 2014255706 A1 20140911; WO 2013060662 A2 20130502; WO 2013060662 A3 20131114; ZA 201403569 B 20150729

DOCDB simple family (application)  
**DE 102012219296 A 20121023**; BR 112014009860 A 20121023; CN 201280063864 A 20121023; EP 12775501 A 20121023; EP 2012070929 W 20121023; ES 12775501 T 20121023; IN 3778CHN2014 A 20140520; JP 2014537573 A 20121023; MX 2014004933 A 20121023; RU 2014120920 A 20121023; US 201214353164 A 20121023; ZA 201403569 A 20140516